

AD-A106 432

THOMAS ELECTRONICS INC WAYNE NJ

F/G 19/1

MANUFACTURING METHODS AND TECHNOLOGY (MM&T) SPECIFICATIONS FOR --ETC(U)

FEB 81 F M BRUNO

DAAK70-80-C-0168

UNCLASSIFIED TEI-A009-1

NL

1 OF 1
AD A
00432



END
DATE
FILMED
11-81
DTIC

AD A106432



(2)

TEI A009-1

DAAK70-80-C-0168

10 February 1981

Thomas Electronics, Inc.
100 Riverview Drive
Wayne, NJ 07470

FIRST QUARTERLY REPORT

for period

1 October 1980 - 31 January 1981

Approved for public release; distribution unlimited

Manufacturing Methods and Technology (MM&T) Specifications for Miniature Cathode Ray Tube

prepared by

F. M. Bruno

Thomas Electronics, Inc.
100 Riverview Drive
Wayne, NJ 07470

OPTIC
ELECTE
NOV 2 1981

A

prepared for

Procurement and Production Directorate
USA MERADCOM
Fort Belvoir, VA 22060

ENC FILE COPY

THOMAS ELECTRONICS, INC.

100 Riverview Drive, Wayne, New Jersey 07470 / 201-696-5200 / TWX: 710-988-5836 / Cable: TOMTRONICS

811030055

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

DISPOSITION

Destroy this report when it is no longer needed. Do not return it to the originator.

ACKNOWLEDGEMENT

This project has been accomplished as part of the US Army Manufacturing Methods and Technology (MM&T) Program which has as its objective the timely establishment of manufacturing processes, techniques, or equipment to insure the efficient production of current or future defense programs.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

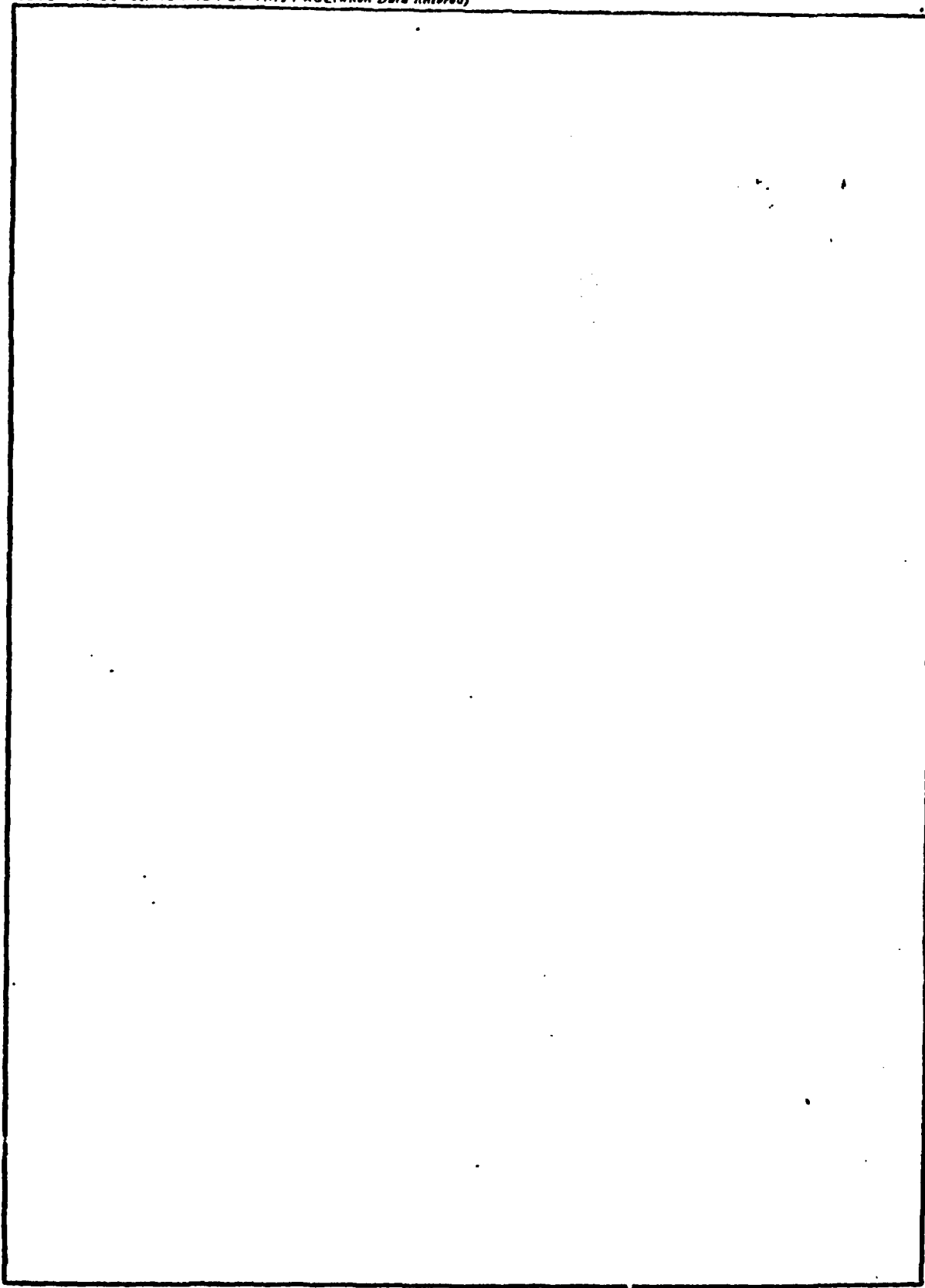
REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 14 TEI-A009-1	2. GOVT ACCESSION NO. AD-A106	3. RECIPIENT'S CATALOG NUMBER 432
4. TITLE (and Subtitle) 6 MANUFACTURING METHODS AND TECHNOLOGY (MM&T) SPECIFICATIONS FOR MINIATURE CATHODE RAY TUBE		5. TYPE OF REPORT & PERIOD COVERED 1st Quarterly Report Oct 80-Jan 81
7. AUTHOR(s) 10 F. M. Bruno		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Thomas Electronics, Inc. 100 Riverview Drive Wayne, NJ 07470		8. CONTRACT OR GRANT NUMBER(s) DAAK70-80-C-0168
11. CONTROLLING OFFICE NAME AND ADDRESS Procurement and Production Directorate USA MERADCOM Fort Belvoir, VA 22060		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 14 14		12. REPORT DATE 10 Feb 81
		13. NUMBER OF PAGES 12
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Miniature cathode ray tube		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) An alternate design was proposed for the neck shield. This design encapsu- lates the anode lead within the shield in order to decrease the possibility of damage due to handling and installation. Materials have been received, inspected, and are available for fabrication and test of the first engi- neering sample during the next quarter - 1 Feb 81 through 30 Apr 81.		

DD FORM 1473
1 JAN 73

EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)



SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Manufacturing Methods and Technology (MM&T) Specifications for

Miniature Cathode Ray Tube

FIRST QUARTERLY REPORT

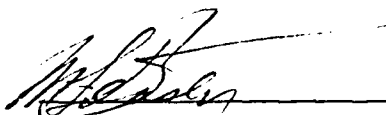
for period

1 October 1980 - 31 January 1981


The object of this study is to develop design, performance, and test specifications for Miniature Cathode Ray Tube (CRT) assembly suitable for use in the Integrated Helmet and Display Sight System (IHADSS) of the Army Advanced Attack Helicopter (AAH).

AMC Contract Number: DAAK70-80-C-0168

Approved by:


M. L. Beasty
Vice President - Engineering

Approved by:


F. M. Bruno
Program Manager

Approved for public release; distribution unlimited

Classification/
Distribution Code
Accession Number
Special

A

ABSTRACT/SUMMARY

An alternate design was proposed for the neck shield. This design encapsulates the anode lead within the shield in order to decrease the possibility of damage due to handling and installation. Materials have been received, inspected, and are available for fabrication and test of the first engineering sample during the next quarter - 1 February 1981 through 30 April 1981.

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
I.	PURPOSE.....	4
II.	GLOSSARY.....	5
III.	NARRATIVE AND DATA.....	6
IV.	CONCLUSIONS.....	8
V.	PROGRAM FOR NEXT INTERVAL.....	9
VI.	IDENTIFICATION OF KEY PERSONNEL.....	10
	DISTRIBUTION LIST.....	11

Section I. PURPOSE

The purpose of this Manufacturing Methods and Technology (MM&T) contract is to establish production methods and facilities required to produce the Miniature Cathode Ray Tube Assembly required for the Integrated Helmet and Display Sight System of the Army Advanced Attack Helicopter.

The primary objectives are to develop vendor sources for the required individual components and establish viable production techniques to meet the necessary monthly production rate. The product produced will be required to meet the mechanical, electrical and environmental parameters of MM&T H799838.

Section II. GLOSSARY

CRT	Cathode Ray Tube
EM	Equipment Manufacturer
MM&T	Manufacturing Methods and Technology

Section III. NARRATIVE AND DATA

1.0 DEVICE. The TEI Part Number 1M40P43MFO has been assigned to the one inch CRT assemblies which will be fabricated for the Miniature CRT Assembly MM&T Program under Contract No. DAAK70-80-C-0168. To facilitate production of engineering samples, some stock materials presently available from a similar program have been allocated for Phase I.

1.1 STRUCTURE. The miniature CRT assembly defined in Specification H799838 consists of a miniature CRT, deflection coil, magnetic shield, anode lead and associated flying leads. The components are assembled, encapsulated, finished and tested in accordance with the processes and procedures to be detailed in future quarterly and other related reports.

1.2 PROBLEM AREAS AND SOLUTIONS. Prior to beginning fabrication of the first engineering sample to be submitted for Phase I, alternate design for several areas must be considered.

1.2.1 Neck Shield. TEI proposes a neck shield configuration with a maximum diameter of .770 inches (19.59 mm). This design would provide for the encapsulation of the anode lead within the shield and continue to meet the drawing requirement of 20.32 mm maximum. The encapsulation of the anode lead would decrease the possibility of damage due to handling and installation procedures and also improve the safety and reliability characteristics of the CRT assembly.

A sample of this design has been submitted to the EM and found

acceptable for installation purposes.

1.2.2 Deflection Coil. TEI is working with its vendor in striving to meet the deflection coil requirements. Two yoke designs have been fabricated and tested, which do not meet the specification characteristics. In addition to working with the yoke vendor on alternative designs, TEI has also reviewed possible deflection amplifier modifications with the EM. A reduction of the yoke diameter would improve the sensitivity parameter. However, this would require decreasing the CRT diameter in the yoke zone to meet the deflection coil requirements.

CRT assemblies with representative samples of the two (2) deflection coil designs were submitted to the EM for system evaluation. The result of this evaluation was that the "-1" configuration was more compatible with the system requirements. The characteristics of the "-1" yoke to be used are shown in the following table:

	RESISTANCE-ohms	INDUCTANCE- μ h	SENSITIVITY @7KV
HORIZONTAL	1.754	120	9.5mm @ .778 Amp.
VERTICAL	1.851	144	9.5mm @ .749 Amp.

1.2.3 Other Materials. All other component items, i.e., funnel neck, fiber optic faceplate, funnel shield, leads, electron gun parts, etc., are available for the Engineering Samples.

Section IV. CONCLUSIONS

Materials are available to produce the first engineering sample and satisfy the requirements of Section C.2.2 of the MM&T contract. Therefore, this task will be undertaken within the next reporting period.

Investigations will continue into the possible development of a deflection coil that will satisfy all of the specification characteristics.

Section V. PROGRAM FOR NEXT INTERVAL

1. Fabricate, test and ship the first engineering sample and test report.
2. Continue investigation into the possible development of a compliant deflection coil.
3. Prepare and submit the engineering sample test plan.
4. Fabricate, test and ship the second engineering sample submission.
5. Begin preparation of Confirmatory Sample Process Specifications.

Section VI. IDENTIFICATION OF KEY PERSONNEL

I.	Vice President of Engineering	Michael L. Beasty
II.	Program Manager	Fred M. Bruno
III.	Project Engineer	Michael Ardis, Jr.
IV.	Applications Engineer	Dennis Young
V.	A. Process Engineer	Ronald Berdan
	B. Process Engineer	Sandor Szanyi
VI.	Design Engineer	Emil Sanford
VII.	Glass Engineer	Peter Kohut
VIII.	Quality Assurance Manager	Jake Brain

DISTRIBUTION LIST

<u>ADDRESSES</u>	<u>NO. OF COPIES</u>
Hughes Aircraft Company Industrial Products Division 6155 El Camino Real ATTN: K. Fujimoto Carlsbad, CA 92008	1
Westinghouse Electric Corporation Industrial & Government Tube Division Westinghouse Circle ATTN: J. Funair MS224 Horseheads, NY 14845	1
Electron Tube Division Litton Industries 960 Industrial Road ATTN: James Wurtz San Carlos, CA 94070	1
Defense Documentation Center 5010 Duke Street ATTN: DDC-IRS Cameron Station (Bldg. 5) Alexandria, VA 22314	2 (Unclassified)
Director Night Vision & Electro-Optics Laboratory ATTN: DELNV-SI-SPT (Mr. Phil Deane) Fort Belvoir, VA 22060	5
Director U.S. Army Electronics & Development Command Night Vision & Electro-Optics Laboratory ATTN: DELNV-RM-RA (M. Pabto) Fort Belvoir, VA 22060	1
EMI GENCOM INC. 80 Express Street ATTN: Mr. Fred Belasco Plainview, NY 11803	1
Naval Air Development Center ATTN: Code 6022 (Mr. J. H. Brindle) Warminster, PA 18974	1

<u>ADDRESSES</u>	<u>NO. OF COPIES</u>
Air Force Avionics Laboratory ATTN: AFWAL/AAAT (Mr. John Mysing) Wright-Patterson AFB, OH 45433	1
Electronic Technology & Devices Laboratory ATTN: DELET-BD (Dr. Elliott Schlam) Fort Monmouth, NJ 07703	1